

Notice of Allowability

Application No.

10/531,584

Examiner

Nancy Bitar

Applicant(s)

AOKI ET AL.

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/22/2005.
2. ☒ The allowed claim(s) is/are 1,4,6-13 and 18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 11/23/05,04/18/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions, which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1,4,6-13,15,18 drawn to " An unauthorized –alteration position detecting ".

Group II, claim(s) 2,5-13,16,19, drawn to "how embedding affects pixel values".

Group III, claim(s) 3-12,14,17,20, drawn to " embedding a signature image into an original image and an extraction process for extracting the signature image".

2. The inventions listed as Groups I, II, AND III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Group I teaches an unauthorized –alteration detection method by using an “*the processing section obtains an integer having the minimum absolute value and satisfying $F_{sub.i,j}(x',y') + \Delta = g_{sub.i,j} \pmod{\epsilon}$ as an embedding amount Δ in each block from the number-theoretic-transformed block $F_{sub.i,j}(x', y')$ of the original-image block at the embedding position, the pixel value $g_{sub.i,j}$ of the signature image, and embedding strength “*

Group II teaches an unauthorized-alteration detection method by using “the processing section obtains a remainder by dividing the number-theoretic-transformed block $H_{sub.i,j}(x', y')$ at the extraction position by embedding strength ϵ to extract a pixel value $g_{sub.i,j}$ of the signature image”

Group III teaches “*an unauthorized-alteration detecting method comprising an embedding process for embedding a signature image into an original image and an extraction process for extracting the signature image”*

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims

are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. During a telephone conversation with Mr. Randy NoranBrock on 9/14/2007 a provisional election was made without traverse to prosecute the invention of group I, claims 1,4,6-13,15,and 18. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2,3,5,14,16-17,19-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Randy NoranBrock on 9/14/2007.

The application has been amended as follows:

- Claims 2,3,5,14,16-17,19-20 are cancelled.
- Claim 15, is cancelled.
- In claim 4, on line 2, please delete [or 3].
- In claim 6, on line 2, please delete [according to one] and [to 3].
- In claim 7, on line 2, please delete [according to one] and [to 3].

- In claim 8, on line 2, please delete [according to one] and [to 3].
- In claim 9, on line 2, please delete [according to one] and [to 3].
- In claim 10, on line 2, please delete [according to one] and [to 3].
- In claim 11, on line 2, please delete [according to one] and [to 3].
- In claim 12, on line 2, please delete [according to one] and [to 3].
- In claim 13, on line 2, please delete [according to one] and [to 3].
- In claim 18, on line 1, please delete [A recording medium having recorded] and add, "A computer readable medium encoding ".

5. The following is an examiner's statement of reasons for allowance: None of the prior art of record teaches or suggests "a step in which the processing section obtains an integer having the minimum absolute value and satisfying $F_{sub.i,j}(x', y') + \Delta = g_{sub.i,j}(\text{mod } \epsilon)$ as an embedding amount Δ in each block from the number-theoretic-transformed block $F_{sub.i,j}(x', y')$ of the original-image block at the embedding position, the pixel value $g_{sub.i,j}$ of the signature image, and embedding strength ϵ ; a step in which the processing section adds or subtracts the embedding amount Δ to or from the number-theoretic-transformed block $F_{sub.i,j}(x, y)$ of the original-image block, based on (x, y) to obtain the number-theoretic-transformed block $H_{sub.i,j}(x, y)$ of an embedding-applied-image block; a step in which the processing section applies inverse number theoretic transform to the number-theoretic-transformed block $H_{sub.i,j}(x, y)$ to obtain the embedding-applied-image block $h_{sub.i,j}(x, y)$; and a step in which the processing section obtains the embedding-applied-image block $h_{sub.i,j}(x, y)$ for each of all (i, j) blocks to obtain an embedding-

applied image [h], and stores it in the storage section and/or outputs it from an output section or an interface. "

Cox et al (5930,369) teach a watermark is inserted into perceptually significant components of the frequency spectral image. The resultant watermarked spectral image is subjected to an inverse transform to produce watermarked data. The watermark is extracted from watermarked data by first comparing the watermarked data with the original data to obtain an extracted watermark. Then, the original watermark, original data and the extracted watermark are compared to generate a watermark, which is analyzed for authenticity of the watermark. Nakamura et al (US 6,185,312) teaches bedding information comprises: a blocking step for dividing data to be processed into blocks; an orthogonal transform step for obtaining coefficients by carrying out orthogonal transformation for each block; an embedding coefficient selecting step for determining coefficients in which the watermark-information will be embedded by using a random sequence which is generated by initial value; an information embedding step for sequentially embedding the watermark-information, which has arbitrary length of bits, by quantizing value of said coefficients using a predetermined value for quantization; and an inverse orthogonal transform step for carrying out inverse orthogonal transformation for modified coefficients to form block in which the watermark-information is embedded, as well as combining the divided blocks and reconstructing the original form. The examiner finds no reason or motivation to combine the above references in an obviousness rejection thus placing the application in condition for allowance.

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6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

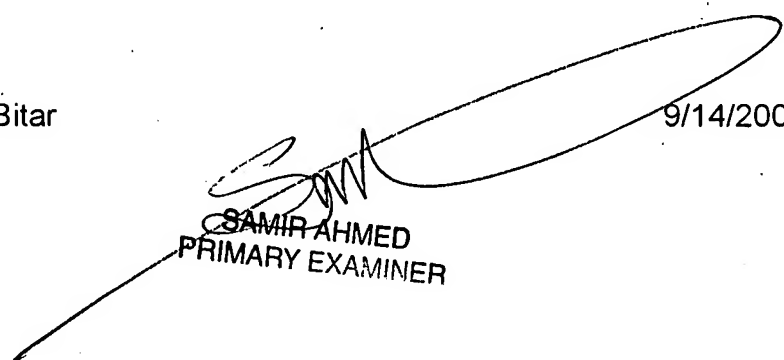
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nancy Bitar whose telephone number is 571-270-1041. The examiner can normally be reached on Mon-Fri (7:30a.m. to 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Nancy Bitar

9/14/2007


SAMIR AHMED
PRIMARY EXAMINER